

12.2-12.7 GHz Experiment Description

1 Introduction

Qualcomm's technologies powered the smartphone revolution and connected billions of people. We pioneered 3G and 4G – and now we are leading the way to 5G and a new era of intelligent, connected devices. Our products are revolutionizing industries, including automotive, computing, IoT, healthcare and data center, and are allowing millions of devices to connect with each other in ways never before imagined. Qualcomm Incorporated includes our licensing business, QTL, and the vast majority of our patent portfolio. Qualcomm Technologies, Inc., a subsidiary of Qualcomm Incorporated, operates, along with its subsidiaries, all of our engineering, research and development functions, and all of our products and services businesses, including, our QCT semiconductor business. For more information, visit Qualcomm's [website](#), [OnQ blog](#), [Twitter](#) and [Facebook](#) pages.

Qualcomm is conducting limited antenna pattern testing of antennas designed for use in the 12.2-12.7 GHz frequency range. The antenna testing requires a large separation distance to gather far field data due to the frequencies and antenna aperture size and cannot be completed in Qualcomm anechoic chamber.

This request is to extend the period covered by an STA (call sign WL9XIT) which expires 31 December 2017.

In that STA, at the request of BSS operators, and the direction from the FCC to obtain their consent, we showed that the interference "EPFD" level requested should be $< -171\text{dBW}/\text{M}^2/4\text{KHz}$. We confirm that this EPFD levels will remain below this limit and that the test configuration remains unchanged.

The configuration described here meets those requested levels and simulations have been shared with all BSS operators concerned that demonstrate compliance.

Qualcomm respectfully requests the Commission to grant an Experimental license to enable Qualcomm to continue with these important antenna characterization measurements

2 Transmitter Information

Testing is temporary and expected to occur infrequently for up to twelve months while the test measurements are completed. The transmitter will only be operational during active testing that occurs at any time during the day or week. Test periods are typically 10-30 minutes when testing is active.

A highly directional antenna, with very low power levels has been selected to meet BSS operators requested interference levels of $-171\text{dBW}/\text{M}^2/4\text{KHz}$. It is mounted and pointed so as to use the building structure to provide additional shielding to back-lobes is shown in figure 1 and 2 and attachment A. Table 1 defines the transmitter information and Table 2 defines the site location.

A single, low-power continuous wave form ("CW"), measurement signal will be transmitted from the site defined in Table 2 at a fixed orientation. Eight test frequencies which have been agreed with BSS operators are specified in Table 3.

The equipment under test ("EUT") is a receive antenna that is located on another building as shown in Figure 2. The receive antenna's orientation is moved in a process to evaluate the antenna pattern.

Table 1 Transmitter Information

Type	Frequency (GHz)	Peak EIRP				Peak Antenna Gain (dBi)	Emission BW
		dBm	dBW	W EIRP	W ERP		
Fixed	12.2-12.7 (At table 3 intervals)	15.6	-14.4	0.036	0.036	30.7	CW

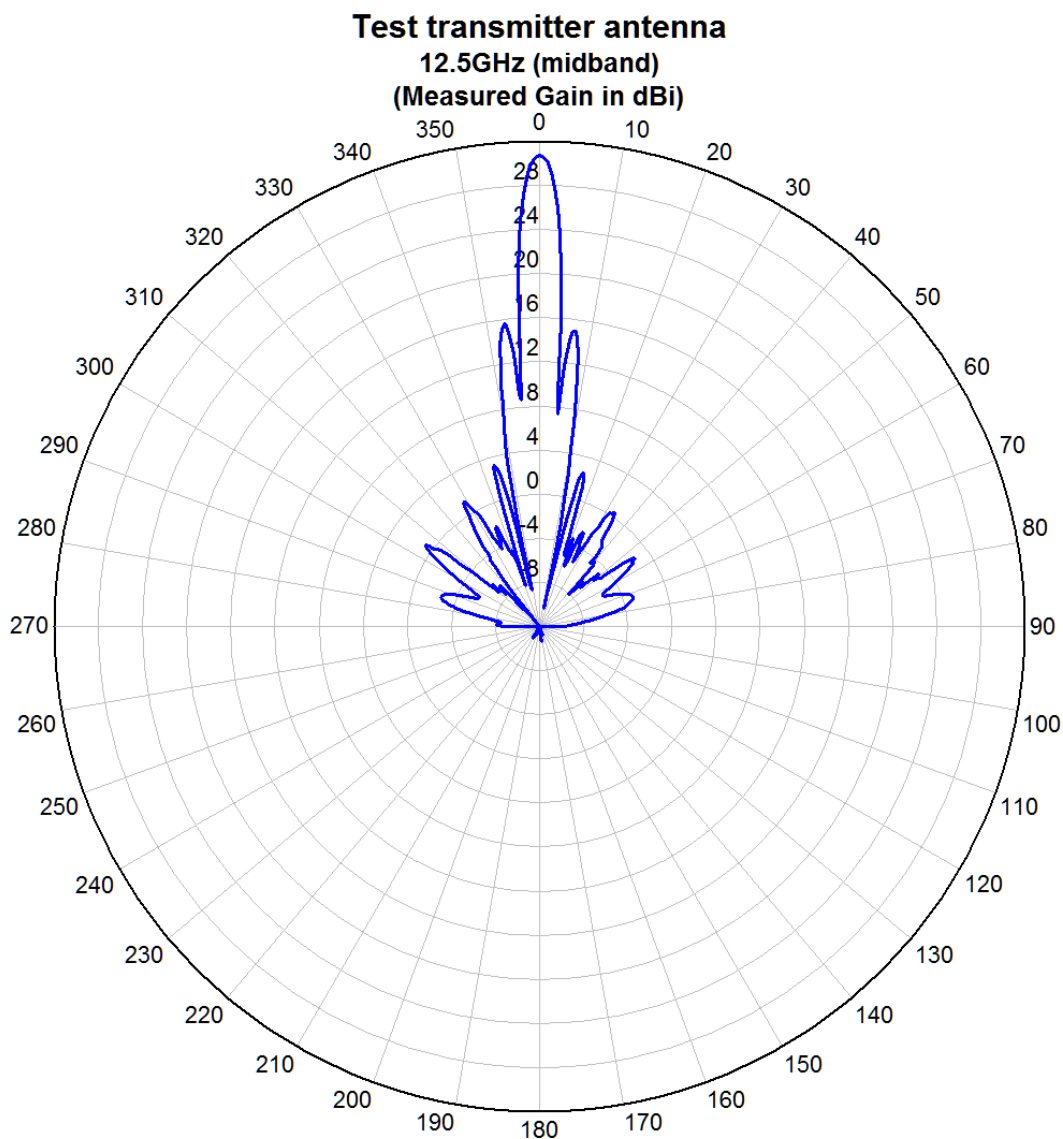


Figure 1 Fixed Site Antenna Pattern

Figure 2 Location of Test antenna and transmit path

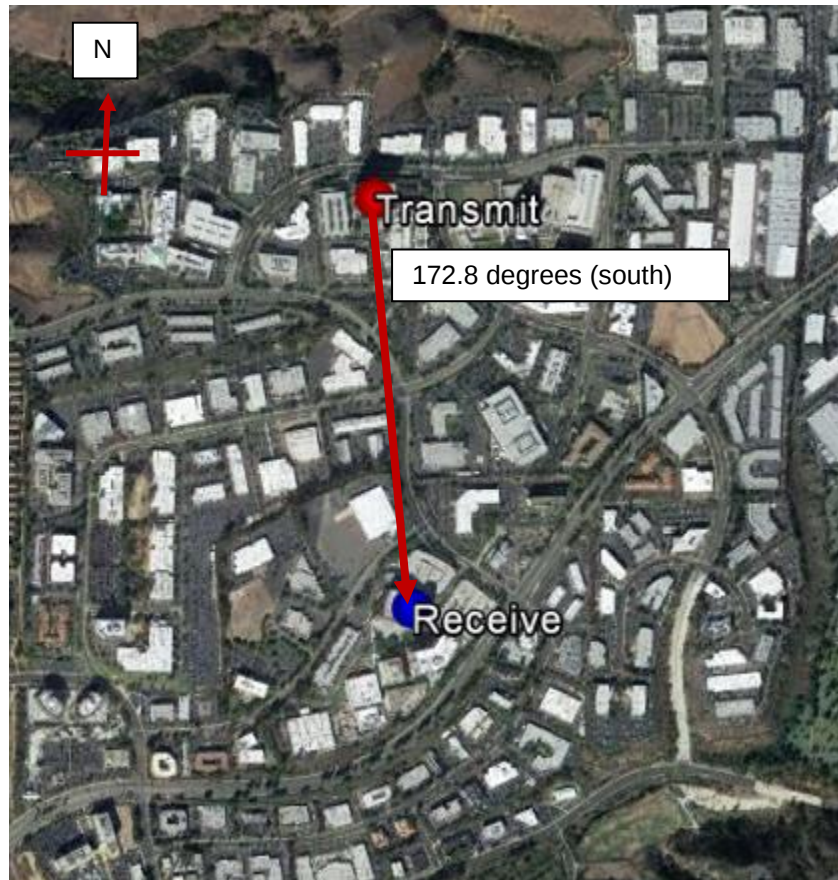


Table 2 Transmitter Site Information

Site #	Address	County	Lat	Long	3dB Beamwidth	Azimuth	Elevation	Antenna Type
1	5745 Pacific Center Blvd San Diego, CA 92121	San Diego	32 54 14 N	117 11 47 W	4 degrees	172.8 degrees (south)	+2.8 degrees above horizon	Directional 15 inch reflector

Table 3 BSS Coordinated Transmitter Test Frequencies

Test frequency	BSS Channel number	BSS CH center Frequency (MHz)
12,238.68	2	12,238.58
12,297.00	6	12,296.90
12,355.32	10	12,355.22
12,413.64	14	12,413.54
12,471.96	18	12,471.86
12,530.28	22	12,530.18
12,588.60	26	12,588.50
12,646.92	30	12,646.82

All test signals are Continuous Wave (CW) with an Emission designator 100HN0N with an input power to the antenna of -45dBW.

3 License Requested

Qualcomm respectfully requests the Commission to grant an experimental license to enable us to complete important antenna performance measurements

4 Points of Contact to stop transmission

The following points of contact is available as a stop buzzer.

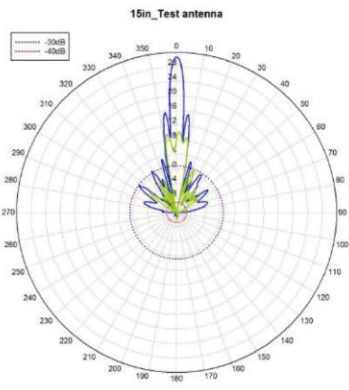
Email ku.spectrum.shutdown@qti.qualcomm.com; or

Brian Jones
5775 Morehouse Drive
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CA 92121
858 658 4751(24 hrs hour contact)
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Attachment A

Figure 1. Antenna pattern and location

Antenna Pattern and New Location



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